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12/05/01



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent Application Of: Leising et al.

For: Preparation Of  $\epsilon$ -Phase Silver Vanadium Oxide From  
 $\gamma$ -Phase SVO Starting Materials

the specification of which is being transmitted herewith

Assistant Commissioner of Patents  
Washington, D.C. 20231

**INFORMATION DISCLOSURE STATEMENT  
Pursuant to 37 CFR 1.56**

1. Applicants submit herewith patents, publications or other information of which they are aware, which they believe may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR 1.56.

The filing of this Information Disclosure Statement (IDS) shall not be construed as a representation that a search has been made (37 CFR 1.56(g)), an admission that the information cited is, or is considered to be material to patentability or that no other material information exists.

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IDS For: Preparation Of  $\epsilon$ -Phase Silver Vanadium Oxide From  
 $\gamma$ -Phase SVO Starting Materials  
Inventor: Leising et al.

The filing of this IDS shall not be construed as an admission against interest in any manner (Notice of Jan. 9, 1992, 1135 O.G. 13-25, at 25).

2. Attached is Form PTO-1449. Legible copies of all items listed accompany this IDS.

3. A concise explanation of the possible relevance of the listed information items is as follows:

Patents:

U.S. Patent 5,221,453 to Crespi teaches a method for making an electrochemical cell having an SVO cathode, in which the SVO material is prepared by a chemical addition reaction consisting of admixing  $\text{AgVO}_3$  and  $\text{V}_2\text{O}_5$  in a 2:1 mole ratio, and heating the admixed  $\text{AgVO}_3$  and  $\text{V}_2\text{O}_5$  at a reaction temperature in the range of 300-700°C for a period of 5 to 24 hours.

U.S. Patents 6,130,005 and 5,955,218, both to Crespi et al., relate to heat treated silver vanadium oxide materials wherein SVO materials such as  $\gamma$ -phase SVO may be heat treated to form decomposition-produced SVO (DSVO). The starting material does not appear to be heated for further combination with a source of silver or other metal. Also, U.S. Patent 5,895,733 to Crespi et al. shows a method for synthesizing SVO by using  $\text{AgO}$  and a vanadium oxide as starting materials.

U.S. Patent 5,545,497 to Takeuchi et al. teaches cathode materials having a general formula of  $\text{Ag}_x\text{V}_2\text{O}_y$  which can comprise a  $\beta$ -phase SVO having a general formula  $x = 0.35$  and  $y = 5.18$  and a  $\gamma$ -phase SVO having the general formula  $x = 0.74$  and  $y = 5.37$

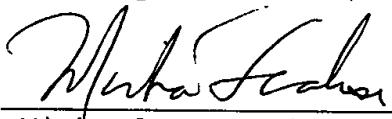
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or a mixture of the phases. The SVOs are produced by the thermal decomposition of a silver salt in the presence of vanadium pentoxide. In addition, U.S. Patent 6,171,729 to Gan et al. shows exemplary alkali metal/solid cathode electrochemical cells in which the cathode may be an SVO of  $\beta$ -,  $\gamma$ - or  $\epsilon$ -phase materials.

U.S. Patent 4,310,609 to Liang et al. teaches the use of decomposable vanadium salts such as ammonium vanadate which may be thermally decomposed to form vanadium pentoxide. The vanadium oxide may be reacted with a second decomposable metal salt which may be added to the vanadium pentoxide for further reaction to produce composite metal oxide-metal oxide, metal-metal oxide, or metal-metal oxide-metal oxide materials.

4. The person making this statement is the agent who signs below, who makes this statement on information supplied by the inventors and on information in the agent's file.

Respectfully Submitted,

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